IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors:	Theodore F. Emerson et al.	Examiner: Patel, Dhairya A.
Serial No.:	10/037,501	Group Art Unit: 2151
Filed:	January 4, 2002	Docket No.: 200302044-1
Title:	Method and Apparatus for Emulating an OS-Supported Communication Device to Enable Remote Debugging	

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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Commissioner for Patents
P.O. Box 1450
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Sir:

This Appeal Brief is filed in response to the Final Office Action mailed July 11, 2008 and Notice of Appeal mailed November 11, 2008.

AUTHORIZATION TO DEBIT ACCOUNT

It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's deposit account no. 08-2025.

I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

II. RELATED APPEALS AND INTERFERENCES

There are no known related appeals or interferences known to Appellant, Appellant's legal representative, or assignee that will directly affect or be directly affected by or have a bearing on the Appeal Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1 – 9 and 11 – 23 are pending in the application and stand finally rejected.

The rejection of claims 1 – 9 and 11 – 23 is appealed.

IV. STATUS OF AMENDMENTS

No amendments were made after receipt of the Final Office Action. All amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following provides a concise explanation of the subject matter defined in each of the claims involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element or that these are the sole sources in the specification supporting the claim features.

Claim 1

A remote server management controller (Fig. 2 shows a block diagram of a remote server management controller 200: p. 14, lines 7-8), comprising:

an external communication interface adapted to receive data from a remote user (Fig. 2 shows an Ethernet interface 322 that provides a main external communication interface between the controller 200 and the outside world: p. 18, lines 19-21. Fig. 2 also shows a UART 316 which includes two 16550 UARTs that provide serial communication between the controller 200 and the external world: p. 17, lines 18-21.);

an input/output processor (IOP) adapted to (Fig. 2, shows at IOP 302: p. 15, line 20):

receive data from the external communication interface (Both UARTs are mapped into the address space of the IOP 302: p. 17, line 21. A user can use an external communication device to engage in an out-of-band communication session with the remote server

management controller 200 via the UART interface: p. 18, lines 13-15.); and

transmit data corresponding to the data received from the external communication interface to an operating system (OS) of a managed server (As discussed in connection with Figs. 2 and 5, a user issues a query and the query is sent to the OS-supported management facility at 808. A response of the OS is sent back to the IOP 302 at 810 and the IOP 302 transmits the response back to the user via the Ethernet interface 322 at 812: p. 29, line 20 – p. 21, line 4.) and

a virtual communication device (VCD) interface (Fig. 6, 600) adapted to:

intercept data received from the OS, the VCD interface comprising a pre-defined standard communication interface, the data received from the OS being intended for a specific communication interface, and to redirect without arbitration the data received from the OS to the remote user via the external communication interface instead of redirecting the data received from the OS to the specific communication interface (As discussed in connection with Fig. 2, under control of the IOP 302, some of the IRC registers 504 function as a virtual communication device ("VCD") that are used to intercept UART communications or communications from other sources. Data intercepted through the VCD may be altered by the IOP and/or redirected to other outputs of the remote server management controller 200: p. 21, lines 17-21.).

Claim 9

A remote server management controller (Fig. 2 shows a block diagram of a remote server management controller 200: p. 14, lines 7-8), comprising:

an input/output processor (IOP) (Fig. 2, 302) adapted to monitor interrupt data transmitted from a super I/O (SIO) (Fig. 6, 902) to a southbridge (Fig. 6, 902), to alter the interrupt data transmitted from the SIO based on input received from an external user via an external communication interface and to transmit the altered interrupt data to a managed server (Fig. 1, 20) (The SIO provides input/output functions for the managed server 20: p. 30, line 22. The SIO can also generate interrupts: p. 31, line 8. Data intercepted through the VCD may be altered by the IOP and/or redirected to other outputs of the remote server management controller 200. For example, data intercepted by the VCD may be redirected to a remote user via the Ethernet interface 322: p, 21, lines 19-22.); and

a virtual communication device (VCD) (Fig. 6, 600) that comprises a predefined standard communication interface, the VCD being adapted to:

intercept responsive data intended to be transmitted to the SIO in response to the altered interrupt data, the responsive data being in a format that is not compatible with the first communication protocol (Under control of the IOP 302, some of the IRC registers 504 may function as a virtual communication device ("VCD") that may be used to intercept UART communications or communications from other sources: p. 21, lines 17-19.); and

prevent the responsive data from reaching the SIO;

format the responsive data for transmission; and

redirect without arbitration the formatted data to the external communication interface (When the CPU of the managed server responds to the interrupts generated by the IOP via the PCI bus 314, the VCD 600 intercepts the response, prevent the response from reaching the SIO 902 and, instead, redirecting it to the IOP 302. In this manner, the remote server management controller effectively emulates any I/O device supported by the SIO 902 without interfering with the operation of the managed server 20: p. 33, lines 16-20.).

Claim 13

A method of remotely retrieving data from an operating system (OS), the method comprising the acts of:

receiving a request for OS information from a remote user (At 802, a remote user initiates an out-of-band communication with the controller 200: p. 29, lines 14-15. The user's query is received by the IOP 302 at 804 and directed to the VCD or USB interface 326 at 806, depending on which interface is employed by the OS of the managed server 20 for management communications. The VCD 600 or USB interface 326 passes the user's request to the OS via the OS-supported management facility at 808: p. 29, line 29 – p. 30, line 1.)

transmitting the request for OS information to the OS via a virtual communication device (VCD) interface comprising a pre-defined standard communication interface (The VCD 600 or USB interface 326 passes the user's request to the OS via the OS-supported management facility at 808 and receives the response back from the OS. The VCD 600 or USB interface 326 passes the response of the OS back to the IOP 302 at 810 and the IOP 302 transmits the response back to the user via the Ethernet interface 322 at 812: p. 30, lines 1-4);

receiving, via the VCD interface, data responsive to the act of transmitting the request to the OS, the data being intended for a specific communication interface (The user's query is received by the IOP 302 at 804 and is directed to the VCD or USB interface 326 at 806: p. 29, lines 20-21.);

formatting the responsive data for transmission (For example, Ethernet interface 322 provides an external communication interface between the remote server management controller 200 and the outside world. The Ethernet interface 322 includes a MAC (Media Access Controller), inbound and outbound FIFOs and a DMA engine to automatically transfer packets: p. 18, line 19 – p. 19, line 1.); and

redirecting without arbitration the formatted data to the external communication (Data intercepted through the VCD may be altered by the IOP and/or redirected to other outputs of the remote server management controller 200: p. 21, lines 17-21).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 9, and 13 are rejected under 35 USC § 112, first paragraph, as failing to comply with the written description.

Claims 1 – 9 and 11 – 23 are rejected under 35 USC § 103(a) as being unpatentable over US publication 2002/0078404 (Vachon) in view of USPN 6,963,817 (Ito).

Claims 1 – 2, 4, 8 – 9, 11 – 14, and 17 – 20 are rejected under 35 USC § 103(a) as being unpatentable over USPN 5,790,895 (Krontz) in view of USPN 6,963,817 (Ito).

Claims 3, 5 – 7, 15 – 16, and 21 – 23 are rejected under 35 USC § 103(a) as being unpatentable over USPN 5,790,895 (Krontz) in view of USPN 6,963,817 (Ito) and US publication 2002/0078404 (Vachon).

VII. ARGUMENT

The rejection of claims 1 – 9 and 11 – 23 is improper, and Appellants respectfully request reversal of these rejections.

The claims do not stand or fall together. Instead, Appellants present separate arguments for various independent and dependent claims. Each of these arguments is separately argued below and presented with separate headings and sub-heading as required by 37 C.F.R. § 41.37(c)(1)(vii).

Claim Rejections: 35 USC § 112

Claims 1, 9, and 13 are rejected under 35 USC § 112, first paragraph, as failing to comply with the written description. These rejections are traversed.

In particular, the Examiner stated:

> As per claims 1, 9, 13, it states "...**to redirect without arbitration** the data received from the OS to the remote user". Nowhere in the specification does it state "to redirect without arbitration". Therefore the claim language is not supported by the specification.
>
> Office Action mailed 12/28/07, page 2.

Appellants respectfully traverse this rejection. Regarding the written description requirement, the initial burden of proof regarding the sufficiency of the written

description falls on the Examiner. Accordingly, the Examiner must present evidence or reasons why persons skilled in the art would not recognize a description of the claimed subject matter in Appellants disclosure. *In re Wertheim*, 541 F.2d 257, 262, 191 U.S.P.Q. 90, 96 (CCPA 1976). The Examiner is also reminded that the written description requirement does not require the claims to recite the same terminology used in the disclosure. The patentee may be his own lexicographer. *Ellipse Corp. v. Ford Motor Co.*, 171 U.S.P.Q. 513 (7th Cir. 1971), aff'd. 613 F.2d 775 (7th Cir. 1979), cert. denied, 446 U.S. 939 (1980).

Independent claims 1, 9 and 13 recite a method and system in which a remote server management controller employs a virtual communication device (VCD) interface that is adapted to intercept data received from an operating system (OS). The virtual communication device (VCD) is further adapted to "redirect without arbitration the data received from the OS to the remote user via the external communication interface instead of redirecting the data received from the OS to the specific communication interface."

Appellants note that the specification clearly states that data intercepted through the VCD may be "redirected to other outputs of the remote server management controller 200. For example, data intercepted by the VCD may be redirected to a remote user via the Ethernet interface 322." Specification, page 21, lines 19-22. As further disclosed in the specification:

> [T]he VCD 600 or USB interface 326 passes the user's request to the OS via the OS-supported management facility at 808 and receives the response back from the OS. The VCD 600 or USB interface 326 passes the response of

> the OS back to the IOP 302 at 810 and the IOP 302 transmits the response back to the user via the Ethernet interface 322 at 812.
>
> Specification, page 29, line 22 - page 30, line 4.

Hence, redirection of data by the VCD is done with no intervening or intermediate steps, such as those implemented by an arbitrator. Further, there is nothing in Appellants' disclosure to suggest that redirection of data by the VCD is done with arbitration. Therefore, it is unforeseeable that one skilled in the art having the benefit of the Appellants disclosure would conclude that redirection of data is done with arbitration.

Moreover, the recited limitation "without arbitration" is a negative limitation and as such does not require literal basis in the specification. As clearly stated by the M.P.E.P:

> [A] lack of literal basis in the specification for a negative limitation may not be sufficient to establish a *prima facie* case for lack of descriptive support. *Ex parte Parks*, 30 USPQ2d 1234, 1236 (Bd. Pat. App. & Inter. 1993).
>
> M.P.E.P. § 2173.05(i).

In the present case, Appellants respectfully assert that the fact that the specification does not *literally* contain the claim recitation "without arbitration" is not an indication that one of ordinary skill in the art would be required to engage in undue

experimentation to conclude that data redirection is performed without the unmentioned act of arbitration, especially when the specification clearly describes that the redirection may be accomplished with no intermediary steps. Indeed, the lack of discussion of arbitration in the specification supports Appellants contention that arbitration was not contemplated as a part of the redirection of data in accordance with Appellants invention.

Accordingly, Appellants respectfully request the Board to reverse the rejection of claims 1, 9 and 13 under 35 U.S.C. § 112, first paragraph.

Claim Rejections: 35 USC § 103(a)

Claims 1 – 9 and 11 – 23 are rejected under 35 USC § 103(a) as being unpatentable over US publication 2002/0078404 (Vachon) in view of USPN 6,963,817 (Ito). These rejections are traversed.

Overview of Law on Obviousness

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in *KSR International Co. v. Teleflex Inc.*, 550 U.S._, 82 USPQ2d 1385 (2007):

> Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial

> success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. Quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966).

As set forth in MPEP 2143.03, to ascertain the differences between the prior art and the claims at issue, "[a]ll claim limitations must be considered" because "all words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385.

According to the Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in view of *KSR International Co. v. Teleflex Inc.*, Federal Register, Vol. 72, No. 195, 57526, 57529 (October 10, 2007), once the *Graham* factual inquiries are resolved, there must be a determination of whether the claimed invention would have been obvious to one of ordinary skill in the art based on any one of the following proper rationales:

> (A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (E) ''Obvious to try''—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; (F) Known work

in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. *KSR International Co. v. Teleflex Inc.*, 550 U.S.__, 82 USPQ2d 1385 (2007).

Furthermore, as set forth in *KSR International Co. v. Teleflex Inc.*, quoting from *In re Kahn*, 441 F.3d 977, 988 (CA Fed. 2006), "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasonings with some rational underpinning to support the legal conclusion of obviousness."

Therefore, if the above-identified criteria and rationales are not met, then the cited reference(s) fails to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited reference(s).

Differences Between the Art and Claims

Each of the independent claims recites one or more elements that are not taught or suggested in the combination of Vachon, Ito, and Krontz. These missing elements show that the differences between the combined teachings in the art and the recitations in the claims are great. As such, the pending claims are not a predictable variation of the art to one of ordinary skill in the art.

These differences are shown below and presented with separate headings for different claim groups.

Sub-Heading: Independent Claims 1 and 9

Independent claim 1 recites, *inter alia*, "A remote server management controller, comprising: an input/output processor (IOP) adapted to…transmit data corresponding to the data *received from the external communication interface to an operating system (OS) of a managed server*; and a virtual communication device (VCD) interface adapted to: *intercept* data received *from the OS*…the data received from the OS being intended for *a specific communication interface*, and to *redirect without arbitration* the data received from the OS to the remote user via the external communication interface instead of *redirecting* the data received from the OS to the specific communication interface." (Emphasis added). Similarly, independent claim 9 recites, *inter alia*, "an input/output processor (IOP) adapted to…alter the interrupt data transmitted from the SIO based on input received from an external user *via an external communication interface* and to transmit the altered interrupt data *to a managed server*; and a virtual communication device (VCD) that comprises a predefined standard communication interface, the VCD being adapted to *intercept* responsive data *intended to be transmitted* to the SIO in response to the altered interrupt data…and *redirect* without arbitration the formatted data to the external communication interface. (Emphasis added).

The Examiner cites the Vachon reference (paragraphs 36 and 38) as describing an input/output processor adapted to transmit data corresponding to the data received from the external communication interface to an operating system of a managed server.

Paragraph 36 of the Vachon reference details the process of a system administrator taking a physical memory snapshot of a target computer by reading and storing the contents of the physical memory of the target computer into a dump file. Similarly, paragraph 38 of the Vachon reference details a process that enables kernel debugging of the physical memory snapshot. However, the cited paragraphs, as well as the remainder of the Vachon reference, fail to describe transmitting data corresponding to the data *received from the external communication interface to an operating system (OS) of a managed server.*

First, the Vashon reference only describes transmitting a snapshot of physical memory, which is not analogous to transmitting data *received from the external communication interface.* The data is clearly described as being located in the physical memory of the target computer, and does not correspond to the data *received from the external communication interface* memory, as recited in claim 1. Second, the snapshot data described in the Vachon reference is not transmitted *to an OS of a managed server.* Indeed, while the target computer may be regarded as being "managed" due to the ability of the host computer being able to halt the execution of the target computer (*see* Vachon, paragraph 38), the only data described by the Vachon reference as being transferred to the host computer is a physical memory snapshot being transmitted to the *host*, not the target. *See id* at paragraph 36. Furthermore, there is no description of a data transfer to an *OS of a managed server.* Thus, the Vachon fails to describe the transmission of data corresponding to the data *received from the external communication interface to an operating system (OS) of a managed server.* Additionally, the Ito reference fails to remedy the aforementioned deficiencies of the Vachon reference.

Instead, the Examiner relies on the Ito reference to teach a virtual communication device interface adapted to *intercept* data received *from the OS*, the data received from the OS being *intended for a specific communication interface*, and to *redirect without arbitration* the data received from the OS to the remote user via the external communication interface instead of *redirecting* the data received from the OS to the specific communication interface. However, these teachings are simply not present in the Ito reference. The Ito reference describes a field instrument and system for obtaining pressure, flow, and temperature data from a facility and passing the data to either a remote or a local terminal. *See* Ito, Abstract. Indeed, the data is explicitly described as being forwarded to a local terminal computer or to a remote computer depending on the *mode of operation* of the operating system. *See* Ito, Col. 11, line 67 – Col. 12, line 10 and Col. 12, lines 18-29. Thus, the system described in the Ito reference is configured to transmit data to either a remote or a local computer based on the *mode of operation* of the operating system.

Because the transmission of data described in the Ito reference is described as based on the *mode of operation* of the operating system, it follows necessarily that when the OS is in a local mode, data is passed to the local computer, whereas when the OS is in remote mode, data is passed to the remote computer. In either case, the data is sent to the location as directed by the OS. Thus, aside from the fact that Appellants do not necessarily agree that the described microprocessor in the Ito reference is analogous to the VCD in claims 1 and 9, there is no description in the Ito reference of the VCD interface being adapted to *intercept* data *intended for a specific communication interface* and *redirecting* of that data, as recited in independent claims 1 and 9. For data to be intercepted and redirected, the data must be cut off from an intended destination and the

destination of the data must be changed. Since the teachings of the ITO reference specifically describe transmitting data along a path *prescribed* by the OS, it can hardly be argued that the data transmission system described by the Ito reference intercepts data *intended for a specific communication interface* and *redirects* that data. Furthermore, as noted by the Examiner, the Vachon reference is silent as to the above claim recitations.

Accordingly, none of the cited references, taken alone or in hypothetical combination disclose all of the features of independent claims 1 and 9. Appellants therefore assert that claims 1 and 9, as well as all claims depending thereon, are allowable. Therefore, Appellants respectfully request withdrawal of the rejection of claims 1-9, 11, 12, 21, and 22.

Sub-Heading: Independent Claim 13

Independent claim 13 recites, *inter alia*, "receiving a request for *OS information* from a remote user…transmitting the request *for OS information* to the OS via a virtual communication device (VCD) interface…receiving, via the VCD interface, data responsive to the *act of transmitting the request* to the OS…and *redirecting* without arbitration the formatted data to the external communication." (Emphasis added).

The Examiner cites the Vachon reference at paragraphs 36 and 38 as describing receiving a request for *OS information* from a remote user and receiving data responsive to the *act of transmitting the request* to the OS. As stated above, paragraph 36 of the Vachon reference merely details the process of a system administrator taking a physical memory snapshot of a target computer by reading and storing the contents of the physical memory of the target computer into a dump file, while paragraph 38 of the Vachon

reference details a process that enables kernel debugging of the physical memory snapshot. The cited paragraphs, as well as the remainder of the Vachon reference, fail to describe receiving a request for *OS information* from a remote user and receiving data responsive to the *act of transmitting the request* to the OS.

Therefore, the Vashon reference only describes a process including transmitting a snapshot of physical memory. Even if this process may be generated by a received request, the request is for accessing the physical memory of a test computer. A request for accessing the physical memory of a test computer *is not* analogous to receiving a request for *OS information* from a remote user. Furthermore, the host computer *itself* reads the content of the target computer physical memory. Vachon, paragraph 36, lines 5-9. This cannot read on the claim language receiving data responsive to the *act of transmitting the request* to the OS, as recited in independent claim 13. There is no request by the host computer to the OS of the target computer, rather, the host computer *itself* reads the content of the target computer physical memory. Thus, the Vachon fails to describe receiving and transmitting the request for *OS information* from a remote user to the OS via a virtual communication device (VCD) interface, as well as receiving, via the VCD interface, data responsive to the *act of transmitting the request* to the OS, as recited in independent claim 13. Additionally, the Ito reference fails to remedy the aforementioned deficiencies of the Vachon reference.

Instead, the Examiner relies on the Ito reference to teach *redirecting* without arbitration the formatted data to the external communication. However, as shown above, the teaching of *redirection* without arbitration the formatted data to the external communication is simply not present in the Ito reference. The system described in the Ito

reference is configured to transmit data to either a remote or a local computer based on the *mode of operation* of the operating system. Because the transmission of data described in the Ito reference is described as based on the *mode of operation* of the operating system, *redirecting* of that data is not taught, since redirection requires that the destination of the data must be changed. Since the teachings of the ITO reference specifically describe transmitting data along a path *prescribed* by the OS, it can hardly be argued that the data transmission system described by the Ito *redirects* the transmitted data. Furthermore, as noted by the Examiner, the Vachon reference is silent as to the above claim recitation.

Accordingly, none of the cited references, taken alone or in hypothetical combination disclose all of the features of independent claim 13. Appellants therefore assert that claim 13, as well as all claims depending thereon, are allowable. Therefore, Appellants respectfully request withdrawal of the rejection of claims 13-20 and 23.

Claim Rejections: 35 USC § 103(a)

Claims 1 – 2, 4, 8 – 9, 11 – 14, and 17 – 20 are rejected under 35 USC § 103(a) as being unpatentable over USPN 5,790,895 (Krontz) in view of USPN 6,963,817 (Ito). These rejections are traversed.

Claims 1 – 2, 4, 8 – 9, 11 – 14, and 17 – 20 recite one or more elements that are not taught or suggested in Krontz in view of Ito. These missing elements show that the differences between the combined teachings in the art and the recitations in the claims are great. As such, the pending claims are not a predictable variation of the art to one of ordinary skill in the art.

Sub-Heading: Independent Claims 1, 9, and 13

Independent claim 1 recites a virtual communication device (VCD) interface adapted to intercept data received from an operating system (OS) and "to redirect *without arbitration* the data received from the OS to the remote user." (Emphasis added). Similarly, independent claims 9 and 13 recite a VCD adapted to "redirect *without arbitration* the formatted data to the external communication interface." (Emphasis added).

As noted by the Examiner, the Krontz reference fails to teach a system that includes data redirect *without arbitration*. However, the Krontz reference not only fails to teach a system that includes data redirect *without arbitration*, but rather the Krontz reference *requires* data redirection *with* arbitration. The Krontz reference discloses an *arbitrator* 220 which supervises the sharing of the modem so that "applications executing in the operating system mode is prevented from interfering with the remote console's exclusive use of the modem." Krontz, col. 10, lines 34-44. As further disclosed by the Krontz reference, "the SMI handler for the virtual communication port 200 acts as an *arbitrator* to decide when access to the virtual communication port 200 should be forwarded to the UART device 145." Krontz, col. 10, lines 51-54; *See* also Fig. 2. (Emphasis added). That is, before data can be redirected to the external communication interface 145 from the virtual communication port 200, the arbitrator 220 decides on allocating these devices among various computer applications requesting access to these resources. Further, a series of conditions provided by the arbitrator 220 may determine when the external communication interface 145 may access the virtual communication port 200. Krontz, col. 11, lines 52-65.

Thus, because the technique disclosed by the Krontz reference is aimed at sharing a resource among multiple computer applications, employing an arbitrator for allocating access to the virtual communication port 200 and forwarding such an access to the external communication port 145 is necessary. In other words, without employing such arbitration means, the system disclosed by the Krontz reference would not be functional. As such, the Krontz teaches away from a combination with a secondary reference to show the claimed redirection of data "*without arbitration*... from the OS to the remote user," as recited by independent claim 1. Similarly, the Krontz reference teaches away from a combination with a secondary reference to show the claimed VCD adapted to "redirect *without arbitration* the formatted data to the external communication interface," as recited by independent claims 9 and 13 specifically because the problem solved by the Krontz reference, sharing a resource among competing devices, *requires* some form of arbitration to determine which device gets access to the resource.

However, despite the fact the Krontz reference itself teaches away from a combination with a secondary reference to show *redirection without arbitration* the data received from the OS to the remote user and *redirection without arbitration* the formatted data to the external communication interface as recited in independent claims 1, 9, and 13, the Examiner applied the Ito reference to show the above referenced recitations. However, as shown above, the Ito reference fails to teach or suggest *redirecting* without arbitration the formatted data to the external communication, instead disclosing, at best, transmission of data to either a remote or a local computer based on the *mode of operation* of the operating system. Because the transmission of data described in the Ito reference is described as based on the *mode of operation* of the operating system, *redirecting* of that

data is not taught, since redirection requires that the destination of the data must be changed. Since the teachings of the ITO reference specifically describe transmitting data along a path *prescribed* by the OS, it can hardly be argued that the data transmission system described by the Ito *redirects* the transmitted data. Furthermore, as noted by the Examiner, the Krontz reference is silent as to the above claim recitation.

Accordingly, none of the cited references, taken alone or in hypothetical combination disclose all of the features of independent claims 1, 9, and 13. Appellants therefore assert that claims 1, 9, and 13, as well as all claims depending thereon, are allowable. Therefore, Appellants respectfully request withdrawal of the rejection of claims 1-9 and 13-23, and request that the same be passed to issue.

Claim Rejections: 35 USC § 103(a)

Claims 3, 5 – 7, 15 – 16, and 21 – 23 are rejected under 35 USC § 103(a) as being unpatentable over USPN 5,790,895 (Krontz) in view of USPN 6,963,817 (Ito) and US publication 2002/0078404 (Vachon). These rejections are traversed.

As explained above, Krontz in view of Ito fail to teach or suggest all of the elements of the independent claims. Vachon fails to cure these deficiencies. For at least the reasons given with respect to the independent claims, respective dependent claims 3, 5 – 7, 15 – 16, and 21 – 23 are allowable over Krontz in view of Ito and Vachon.

CONCLUSION

In view of the above, Appellants respectfully request the Board of Appeals to reverse the Examiner's rejection of all pending claims.

Any inquiry regarding this Amendment and Response should be directed to Philip S. Lyren at Telephone No. 832-236-5529. In addition, all correspondence should continue to be directed to the following address:

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VIII. Claims Appendix

1. A remote server management controller, comprising:

an external communication interface adapted to receive data from a remote user;

an input/output processor (IOP) adapted to:

receive data from the external communication interface; and

transmit data corresponding to the data received from the external communication interface to an operating system (OS) of a managed server; and

a virtual communication device (VCD) interface adapted to:

intercept data received from the OS, the VCD interface comprising a pre-defined standard communication interface, the data received from the OS being intended for a specific communication interface, and to redirect without arbitration the data received from the OS to the remote user via the external communication interface instead of redirecting the data received from the OS to the specific communication interface.

2. The remote server management controller of claim 1, wherein the specific communication interface is a UART interface of the managed server.

3. The remote server management controller of claim 1, wherein the specific communication interface is a USB host controller of the managed server.

4. The remote server management controller of claim 1, wherein data received from the user over the external communication interface is transmitted to the OS of the managed server via a UART interface.

5. The remote server management controller of claim 1, wherein data received from the user over the external communication interface is transmitted to the OS of the managed server via a USB interface.

6. The remote server management controller of claim 1, wherein the specific communication interface is a 1394 interface of the managed server.

7. The remote server management controller of claim 1, wherein data received from the user over the external communication interface is transmitted to the OS of the managed server via a 1394 interface.

8. The remote server management controller of claim 1, wherein the external communication interface is an Ethernet interface.

9. A remote server management controller, comprising:

an input/output processor (IOP) adapted to monitor interrupt data transmitted from a super I/O (SIO) to a southbridge, to alter the interrupt data transmitted from the SIO based on input received from an external user via

an external communication interface and to transmit the altered interrupt data to a managed server; and

a virtual communication device (VCD) that comprises a predefined standard communication interface, the VCD being adapted to:

intercept responsive data intended to be transmitted to the SIO in response to the altered interrupt data, the responsive data being in a format that is not compatible with the first communication protocol; and

prevent the responsive data from reaching the SIO;

format the responsive data for transmission; and

redirect without arbitration the formatted data to the external communication interface.

10. (Canceled)

11. The remote server management controller of claim 9 wherein the input received from the external user is adapted to emulate an interrupt generated by a device in the managed server.

12. The remote server management controller of claim 9 wherein the external communication interface is an Ethernet interface.

13. A method of remotely retrieving data from an operating system (OS), the method comprising the acts of:

receiving a request for OS information from a remote user

transmitting the request for OS information to the OS via a virtual communication device (VCD) interface comprising a pre-defined standard communication interface;

receiving, via the VCD interface, data responsive to the act of transmitting the request to the OS, the data being intended for a specific communication interface;

formatting the responsive data for transmission; and

redirecting without arbitration the formatted data to the external communication.

14. The method of claim 13 wherein the specific communication interface is a UART interface.

15. The method of claim 13 wherein the specific communication interface is a USB interface.

16. The method of claim 13 wherein the specific communication interface is a 1394 interface.

17. The method of claim 13 further comprising the act of enabling an Ethernet interface to receive the request for OS information.

18. The method of claim 13 further comprising the act of initiating an out-of-band management communication session.

19. The method of claim 13 further comprising the act of enabling a VCD to transmit the request for OS information to the OS.

20. The method of claim 13 wherein the recited acts are performed in the recited order.

21. The remote server management controller of claim 1, wherein the pre-defined communication interface comprises a USB interface.

22. The remote server management controller of claim 9, wherein the pre-defined standard communication interface comprises a USB interface.

23. The method of claim 13, wherein the pre-defined standard communication interface comprises a USB interface.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.